ABSTRACT OF THE DISCLOSURE

A cell protein profiling and diagnostic system is provided that fractionates a protein content of a tissue sample into protein subgroups, independently performs mass spectroscopy on each protein subgroup, creates a cell expression protein profile from the mass spectra, and identifies protein patterns associated with subject characteristics, such as biological conditions and diseases, based on the cell expression protein profile. In one embodiment, the protein patterns are identified with an artificial neural network, or other data mining or pattern recognition techniques.